

May 29, 2022

**Santa Barbara County
123 E Anapamu Street
Santa Barbara, California 93101**

Attn: Mr. Sam Brodersen, Planner

**Re: Proposed Water Well for Agricultural Use –
Existing 4.03 Acre Parcel
4295 Mariposa Drive
Santa Barbara, California
APN 063-172-004**

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Dear Mr. Brodersen:

We have provided a summary of our hydrogeologic findings for the proposed water well located on the 4.03 acre parcel in Hope Ranch at 4295 Mariposa Drive. It is our understanding that the existing/proposed 1+ acre orchard is to be supplied by the proposed agricultural well located in the southeastern portions of the parcel. The existing residence is to remain using La Cumbre Mutual Water District. Background information of the orchard below.

Current Orchard is 21 fruit trees with a proposed attach plan to add 79 more fruit trees on the parcel for commercial use (see attached plan by Maphias Design; dated November 5, 2021). The 100 tree orchard's output of approximately 7,500 to 8,000 pounds per year, is planned to be sold for commercial purposes, which is why expansion of the orchard is so important along with well water to offset the expensive watering costs. The attached aerial photograph shows agricultural activity across the majority of the parcel (Dated June 14, 1992).

The subject property, and proposed water well are located in the south-central portion of Hope Ranch. The proposed water well is not located within a designated water basin. The closest mapped water basin is the Goleta Valley Central Basin, located approximately 6,000 feet to the northwest of the property. The proposed water well is expected to penetrate approximately 15 to 20 feet of marine terrace deposits (Older Alluvium) and the Monterey Shale at depth. The upper 50 feet of the proposed water well will be sealed with cement to prevent any seepage from the thin alluvial blanket for water use. The well will be designed to extract water from fractures within the Monterey shale, which is designated as a non-water bearing formation. In fact the majority of the of the Monterey shale forms an impermeable barrier for lateral groundwater movement. Therefore saltwater intrusion from the nearby pacific ocean, approximately one-half mile to the south, is extremely unlikely given the presence of alternating soft impermeable shale with fractured water bearing shale. Likewise, there are several wells much closer to the ocean with no evidence of saltwater intrusion. Some of these wells have been producing for over 30 years, with no evidence of saltwater intrusion. There is no expected appreciable alteration of flow of

groundwater based on the presence of impermeable soft shale (clay) barriers in the area. Likewise, there is no significant change in the quantity of groundwater given the expected low yield of the well. No overdraft is possible since the well is not located within a groundwater basin and the closest basin (Goleta Valley Central Basin located approximately 6,000 feet to the northwest) is not considered in overdraft. There are no public water wells within a mile of the site since the Monterey Formation is generally a low production source with a designated "Non-water bearing" stratum.

The proposed 600 foot deep water well would produce groundwater from the fractured Monterey shale bedrock aquifers. It has been our experience that these aquifers are reliable water bearing units in the Hope Ranch area. Many years of production history from wells that penetrate this stratigraphic unit in the area have been documented. Recharge to the local aquifer is by direct percolation of rainfall. Seasonal recharge to the local aquifer is therefore inferred. The proposed water well would not impact water from the nearby drainage corridor, approximately 1,500 feet to the west, since it would be extracting water at a greater depth. Likewise, the proposed water well would not impact neighboring water wells due to the distance to the closest neighboring well and expected low yield. The closest water well is a new well under construction, approximately 600 foot deep well situated approximately 600 feet to the northwest. Well interference is unlikely given the relatively impermeable shale in the area and the distance of the closest water well. No ground subsidence is expected given the type of bedrock situated below the property.

The well is to be solely used for the parcel applying for the permit. Two containment bins will be placed temporarily during the drilling and testing process to capture drilling mud and cuttings. The cuttings and mud will then be spread on-site and/or hauled off to a proper disposal area via vacuum trucks. Clean up should be relatively easy with only light shovel work given the use of the containment bins.

We trust this letter provides you with the necessary information you requested. If we can be of further service to you, please feel free to contact our office.

Sincerely,

Adam Simmons

Mr. Adam Simmons
Certified Engineering Geologist & Hydrogeologist
State of California -- CEG #2015 PG #6234 CHG #509



Aerial Photograph of property in red showing agricultural activity (dated June 14, 1992)